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ABSTRACT

A management information system that monitors course enrollments during an institution's registration cycle is described. The registration cycle includes pre-registration demand, pre-registration scheduling, cancellation for nonpayment of bill, in-person registration, and add/drop. The information system utilizes the course registration process as an empirical data source for curriculum decision making. The system provides the academic manager with information for making short and longer term decisions regarding enrollment trends, program migration, and institutional flexibility. The methodology consists of collecting student enrollment data, on a course-by-course basis, at each phase of an institution's registration cycle. From a computer implementation perspective, benchmark processing requires the merging of course enrollment files at each phase of the registration cycle. An updated management report is produced at each phase. The system provides improvements in report structure, including advantageous ordering of information, selection of data elements, and temporal integration of information. In addition to semester planning, multi-semester benchmark comparisons can be used in enrollment trend analysis and long-range forecasting. (Author/SW)

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REGISTRATION: A SYSTEM FOR MONITORING COURSE ENROLLMENTS

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REGISTRATION: A SYSTEM FOR MONITORING COURSE ENROLLMENTS

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ABSTRACT

A management information system is described that monitors course enrollments during an institutions registration cycle (pre-registration demand, pre-registration scheduling, cancellation for non-payment of bill, in-person registration, and add/drop). The information system utilizes the course registration process as an empirical data source for curriculum decision-making. The system provides the academic manager with information for making short and longer term decisions regarding enrollment trends, program migration, and institutional flexibility.

MANAGEMENT INFORMATION

Management information is essential for effective decision-making. The availability of timely and relevant management information, however, often requires a laborious "culling out" process in order to obtain the critical facts required for a given decision.

"Culling out" is necessitated by the excessive number of reports that reach the managers desk. More importantly, these reports are typically designed to support the operational aspects of the business, or to provide information to corporate headquarters, a governing board, or external agency. Most reports utilized by management, then, are not explicitly designed for the needs of the manager as a decision-maker (Rockart, 1979).

The essence of a decision-support system for management is that it is designed from the manager's perspective, and based upon a thoughtful analysis of the information requirements of the decision-making process. The identification of decision areas, and the design and implementation of an appropriate management information system, is not an easy task (Keen, 1980).

The primary function of such a system is to provide selective information

to managers. Effective systems focus on institutional strengths and weaknesses with respect to critical success factors (Daniel, 1961). Critical success factors are those areas which, if satisfactory, "will ensure successful competitive performance for the organization" (Rockart, 1979). In most industries, there are three to six factors that determine success, such as tight control of manufacturing costs, new product development, and effective advertising. Critical success factors must be determined by the institution, and monitored by managers through the use of selective information systems.

COURSE OFFERINGS

In higher education, the curriculum is undoubtedly an important success factor. The distribution of course offerings, as well as the deployment of faculty, and other resources, is dependent to a considerable extent on the judgment of academic managers regarding student course demand trends. These judgments are frequently based on data that is "old," such as number of graduates by major area of study, or data that is "global", such as number of majors in each program at the institution.

REGISTRATION BENCHMARK METHODOLOGY

The registration process can be monitored to provide a continuing empirical data source for determining both short and longer-term patterns of student demand, student migration, and institutional adaptability. The methodology consists of collecting student enrollment data, on a course-by-course basis, at each phase of an institution's registration cycle: pre-registration demand, pre-registration scheduling, pre-registration adjustment cancellation (for nonpayment of bills), in-person registration, and schedule adjustment (add/drop). These enrollment phases provide a framework within which an institution can monitor individual courses, and collections of courses, and can predict the probable outcome of the registration cycle for its program offerings.

From a computer implementation perspective, benchmark processing requires the merging of course enrollment files at each phase of the registration cycle. An updated management report is produced at each phase.

A sample excerpt from the enrollment benchmark report for Management program courses is shown in Table 1.

ADVANTAGES OF REGISTRATION REPORTING FOR PLANNING

The registration reporting system provides managers with information that can be used directly for curriculum decision-making. The objective of the system is to eliminate impediments to planning inherent in existing reports. Specifically, the system provides improvements in report structure, including advantageous ordering of information, judicious selection of data elements, inclusion of several levels of summary totals, and, most importantly, temporal integration of information (see Table 1).

ORDERING OF INFORMATION

The registration report is designed to sequence course information in the most useful way, by ascending course number within program. The report is as compact as possible, minimizing wasted paper.

SELECTION OF DATA ELEMENTS

Only those data elements that provide essential management information relevant to course enrollment within the registration process are included. For example, student credit hours (SCH) and full-time equivalent (FTE) students represented by course enrollment are included. The data elements for instructor's name and social security number are intentionally excluded.

SUMMARY TOTALS

Subtotals are included for programs (see Table 1), as well as divisional and college totals. In addition, all subtotals and totals are displayed at the end of the report to simplify comparisons. All meaningful data elements summarized.

Table.!
Course Enrollment Benchmark Summary
Fall 1983
Course Totals

Course	Capacity	Initial Demand	After Pre-Reg.	After Cancels	After In-Person Reg.	Final	Capacity +-	Capacity PCT	SCH	FTE
MGMT 3110 0001	30	37	30	27	30	35	+5	+16	140	8.75
MGMT 3110 0002	30	71	30	24	30	38	+8	+26	152	9.50
MGMT 3110 0003	30	90	30	27	30	36	+6	+20	144	9.00
MGMT 3110 0004	30	115	30	25	30	37	+7	+23	148	9.25
MGMT 3110 0005	30	33	30	23	30	36	+6	+20	144	9.00
MGMT 3110 0006 (C)	30		0	0	0	0	-	-	0	0.00
MGMT 3110 0007 (A)	30			0	29	38	+8	+26	152	9.50
MGMT 3110 0008 (A)	30			0	30	33	+3	+10	132	8.25
MGMT 3111 0001	30	29	26	22	29	29	-1	-3	116	7.25
MGMT 3120 0001	25	20	20	17	25	31	+6	+24	124	7.75
MGMT 3124 0001	30	38	30	25	30	40	+10	+33	160	10.00
MGMT 3124 0002	30	17	16	15	30	36	+6	+20	144	9.00
MGMT 3124 0003	30	8	7	6	30	31	+1	+3	124	7.75
MGMT 3124 0004	30	39	30	24	30	20	-10	-33	80	5.00
MGMT 3124 0005	30	47	30	28	30	29	-1	-3	116	7.25
MGMT 3124 0006 (A)	30			0	22	14	-16	-53	56	3.50
MGMT 4110 0001	30	43	30	25	30	41	+11	+36	164	10.25
MGMT 4112 0001 (C)	24	12	9	0	0	0	-	-	0	0.00
MGMT 4112 0002	24	22	17	15	24	25	+1	+4	100	6.25
MGMT 4112 0003	24	50	24	20	24	31	+7	+29	124	7.75
MGMT 4112 0004	24	32	20	15	24	24	+0	+0	96	6.00
MGMT 4112 0005	24	25	16	11	23	24	+0	+0	96	6.00
MGMT 4112 0006 (A)	24		0	0	24	24	+0	+0	96	6.00
MGMT 4871 8128 (A)	1					1	+0	+0	4	0.25
MGMT 4901 8129 (A)	1					1	+0	+0	4	0.25
MGMT 4918 8130 (A)	1					1	+0	+0	4	0.25
MGMT TOTAL	598	728	425	349	584	655	+57	+9	2620	163.75

TEMPORAL INTEGRATION

Course enrollments from all previous benchmarks within the semester are included in the most recent report. Thus, the final benchmark, produced after the add/drop period, shows, in addition to final enrollment, course enrollments at all previous benchmarks in the registration cycle.

For example, the course MGMT 3110, section 0004 (see Table 1), has a capacity of 30 students, a pre-registration demand of 115 students, and the following numbers of enrolled students: 30 after pre-registration scheduling, 25 after cancellation for (non-payment of bills), 30 after in-person registration, and 37 after add/drop (final). The final enrollment is +7 students (23%) above capacity, and represents 148 SCH, or 9.25 FTE students.

Note that the course, MGMT 3110, section 0006, was cancelled ("C"), before pre-registration. MGMT 3110, sections 0007 and 0008 were added ("A") for in-person registration.

Thus, benchmark reporting enables the academic manager to monitor course and program enrollments at all points in the registration cycle. The system supports management decisions related to addition of new courses (based on excess demand), cancellation of scheduled courses (based on low demand), altering course capacity, and redeployment of faculty resources.

TREND ANALYSIS

In addition to semester planning, multi-semester benchmark comparisons can be used as powerful tools in enrollment trend analysis and long range forecasting. These comparisons can be made by concatenating enrollments SCH, and/or FTE for several semesters, as shown below.

Fall Semester	CAP	DMD	PRE-REG	CANC	IN-PERSON	FINAL
MGMT 1981	450	339	238	200	374	372
MGMT 1982	540	538	326	248	453	519
MGMT 1983	559	728	425	349	584	655

For example, for all courses in the management program in Fall 1981 and Fall 1982, initial capacity exceeded final enrollment (1981: 450 vs. 372; 1982: 540 vs. 519). However, in Fall 1983, initial capacity (559), although increased from the previous year, could not accommodate final enrollment (655). The accommodation was achieved, in part, by the addition of MGMT courses during the registration cycle (Table 1). Thus, the institution was able to adapt its course offerings to help meet a rising student demand. However, the fact that student demand (728) exceeded final enrollment (655) suggests that some students were "closed out" of MGMT courses.

The Fall 1983 data also suggests that selective increases in MGMT course offerings would improve the success rate of pre-registrants, allow space for new students (who enter the process at the in-person benchmark), and reduce the extent of add/drop activity.

SUMMARY

An information system was described which is expressly designed to support the academic manager in curriculum decision-making. The system utilizes empirical data derived from course and program registration. The resulting report is concise, contains relevant information only, and achieves temporal integration of information.

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